CANADA

DEPARTMENT OF MINES AND TECHNICAL SURVEYS

MINES BRANCH

OTTAWA

FUELS DIVISION

TECHNICAL MEMORANDUM 116/58-PREP

ANALYSIS OF A SAMPLE OF MINE RUN SLACK COAL FROM LUSCAR COALS LIMITED

by

J. VISMAN

(Copy No. ____)

October 20, 1958.

90-04540/

ANALYSIS OF A SAMPLE OF MINE-RUN COAL FROM LUSCAR COALS LIMITED

by

J. Visman*

A split sample of approximately 50 lb was obtained from a 2-ton sample of mine-run slack coal originating from the Luscar strip Mine, stored in bags at the Wabamun Power Plant of the Calgary Power Company, Limited.

This 2-ton sample was crushed to minus 1/8 in. and the split sample obtained by careful blending and splitting under the supervision of an officer of the Fuels Division. Three more samples of approximately 50 lb were prepared in this manner, and these were left at the mine, in multiple bags, for future reference.

Float-sink tests were carried out by the Fuels Division, Edmonton, and the results of this analysis are presented in the following Table, and in a graph showing the washability curves. A size-consist curve is also presented.

The Chemical Analysis of the sample was carried out by the Research Council of Alberta, and a report is enclosed.

Coking tests were carried out by the Research Council of Alberta in a small cyclindrical oven holding approximately 3.3 Kg of coal.

One test was done with the raw coal, containing 15.8% ash. A second test was done on the coal fraction floating at 1.60 specific gravity which carried 7.2% ash.

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The results of these two tests were judged visually only, as the amounts are too small to carry out any standard tests. It was noticed that the quality of the second sample (floats at 1.60) was visibly better than the quality of the coke obtained from the raw coal.

The yield of coke was 76% for the first sample and 75% for the second sample.

Tests for the cleaning of this coal, at 1.6 specific gravity, in a water cyclone pilot plant are planned for the near future.

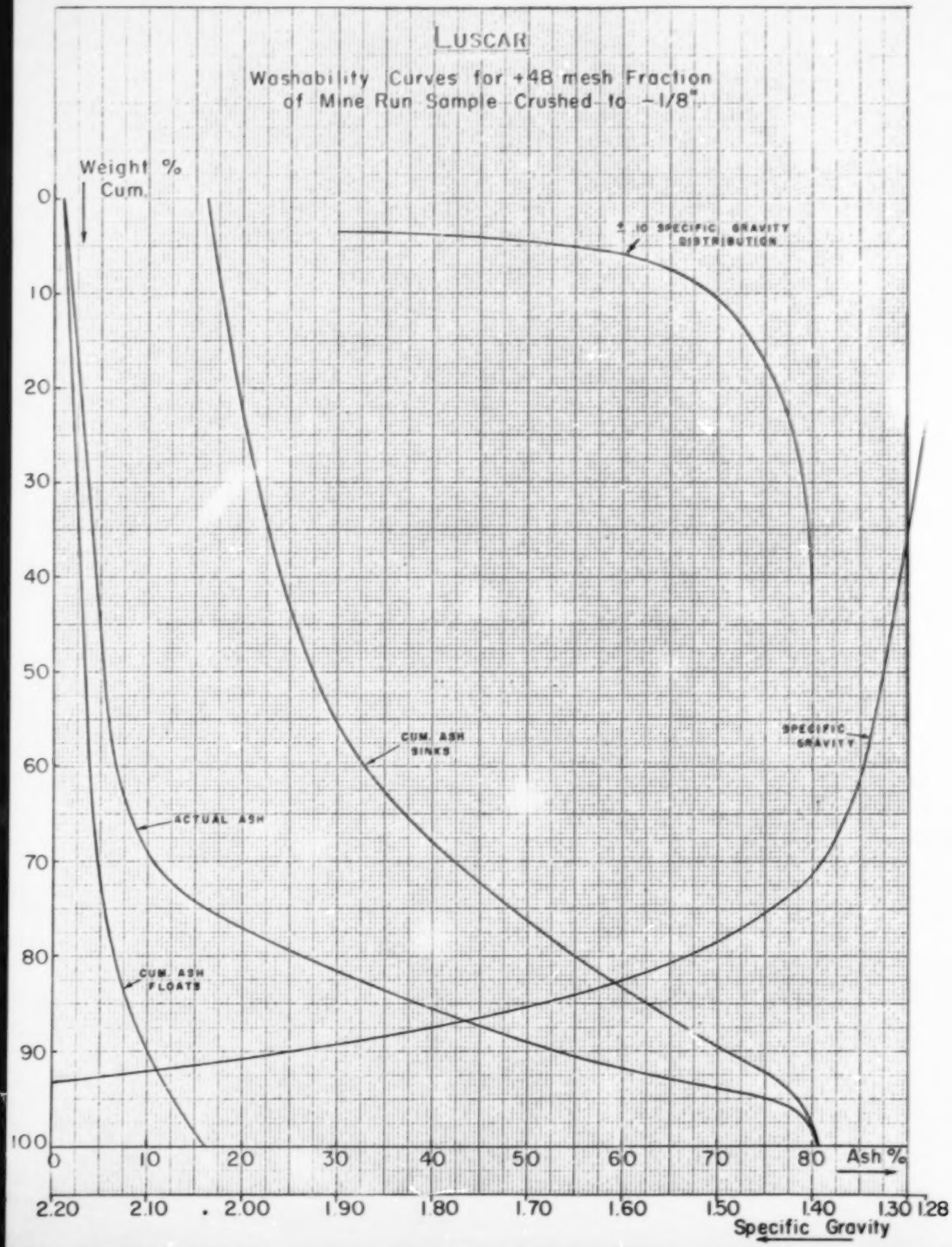
L U S C A R

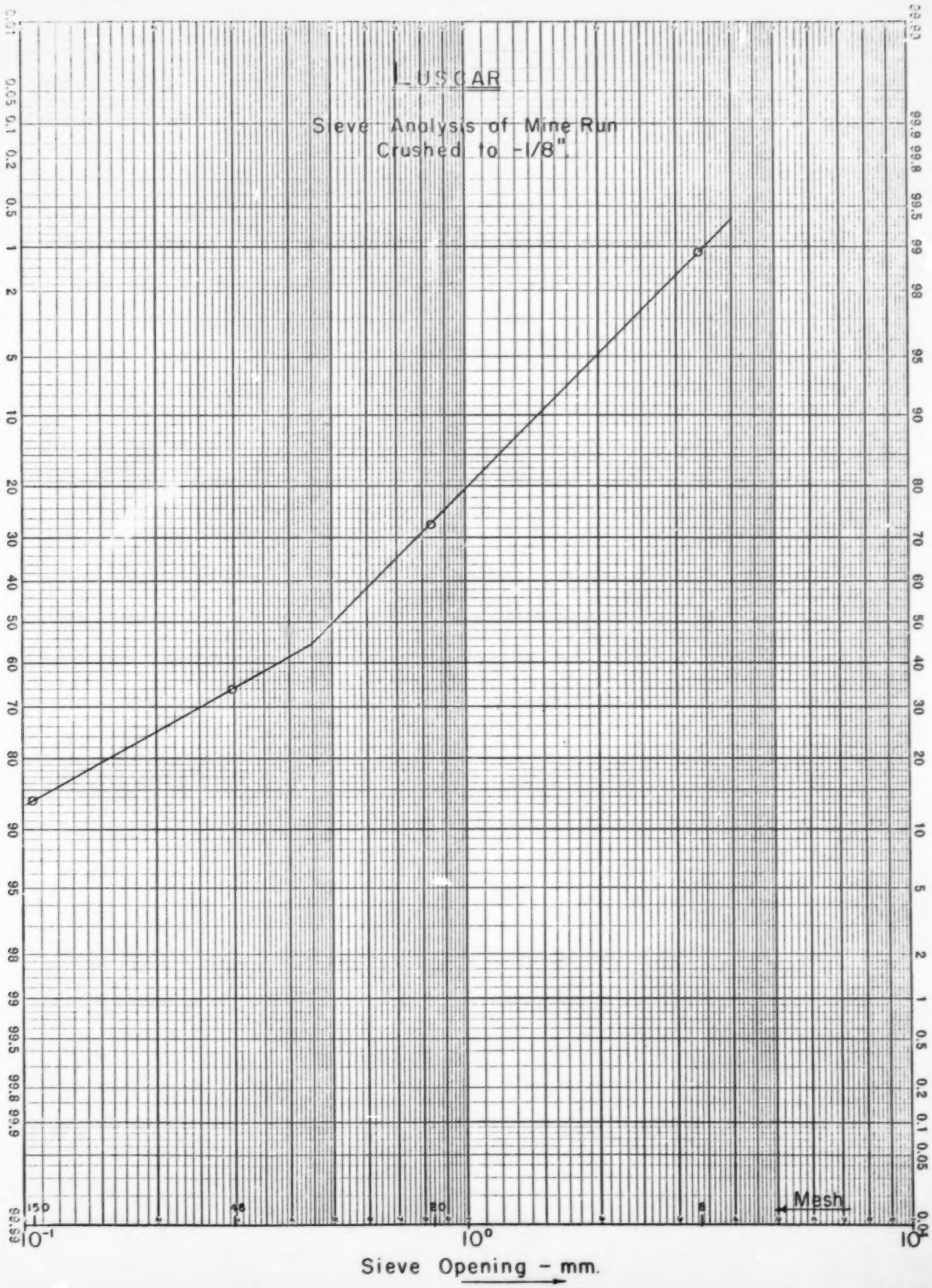
Float - Sink Data on Mine-Run Sample
Crushed to -1/8".

+48 Mesh Fraction (64.26% of total sample)						
Specific Gravity	Weight %	Ash %	Cumulative			
			Floats		Sinks	
			Wt.-%	Ash-%	Wt.-%	Ash-%
-1.28	23.42	2.12	23.42	2.12	100.00	16.19
1.28-1.30	11.70	4.05	35.12	2.76	76.58	20.49
1.30-1.40	36.64	7.10	71.76	4.98	64.88	23.45
1.40-1.60	10.84	22.14	82.60	7.23	28.24	44.67
1.60-2.00	8.19	43.97	90.79	10.54	17.40	58.71
2.00-2.20	2.64	59.16	93.43	11.92	9.21	71.82
+2.20	6.57	76.91	100.00	16.19	6.57	76.91
	100.00					

-48 Mesh Fraction (35.74% of total sample)				
Specific Gravity	Weight %	Ash %	Cumulative	
			Wt.-%	Ash-%
-1.60	85.24	7.82	85.24	7.82
+1.60	14.76	58.14	100.00	15.25
	100.00			

Note: Ash of Total Sample (calculated), dry Basis = 15.85%


LUSCAR
Washability Curves for +48 mesh Fraction
of Mine Run Sample Crushed to -1/8".
Weight %
Cum.
0
10
20
30
40
50
60
70
80
90
100
± 10 SPECIFIC GRAVITY
DISTRIBUTION
CUM. ASH
SINKS
SPECIFIC
GRAVITY
ACTUAL ASH
CUM. ASH
FLOATS
0
10
20
30
40
50
60
70
80
Ash %
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.28
Specific Gravity


LUSCAR
Sieve Analysis of Mine Run
Crushed to -1/8"
Mesh
150
48
20
8
4
10⁻¹
10⁰
10
Sieve Opening - mm.

RESEARCH COUNCIL OF ALBERTA
87th Avenue and 114th Street
Edmonton, Alberta

REPORT OF ANALYSES

The following are the analyses of samples of coal submitted by Dr. J. Visman

Your Designation:		Luscar Mine Run -1/8 inch			
Date Sample Taken:		Oct. 8, 1958			
Laboratory Sample No.		579-58			
		As Received	Dry	As Received	Dry
Moisture	%	1.3	0.0		
Ash	%	15.7	15.9		
Volatile Matter	%	24.0	24.3		
Fixed Carbon	%	59.0	59.8		
Sulphur	%	0.22	.23		
Calorific Value, B.t.u. per lb.		12720	12890		
Free Swelling Index		3½			
Fusion Temp. of coal ash °F			2500°F	Initial Deformation	
			2740°	Softening Temp.	
		above	2800°F	Fluid Temp.	

Remarks:

Date: October 20, 1958 Signed:

Coal Analytical Laboratory Approved: "J. F. Fryer"

RESEARCH COUNCIL OF ALBERTA
87th Avenue and 114th Street
Edmonton, Alberta

REPORT OF ANALYSES

The following are the analyses of samples of coal submitted by

Your Designation:	Luscar Mine Run Coal Floated on solution of Sp. Gr. 1.6
Date Sample Taken:	Oct. 15, 1958
Laboratory Sample No.	581-58

		As Received	Dry	As Received	Dry
Moisture	%	0.9	0.0		
Ash	%	6.1	6.1		
Volatile Matter	%				
Fixed Carbon	%				
Sulfur	%				
Calorific Value, B.t.u. per lb.					
Free Swelling Index		5			

Remarks:

Date: October 20, 1958 Signed: "D. Saunders"

Coal Analytical Laboratory Approved: "J. F. Fryer"